Glass Mtns
Chinati Mtns.
Sierra del Norte
Guadalupes

1967

Texas
Monument spgs. □
top 1/3

...es. The spurs are truncated at ...ico is
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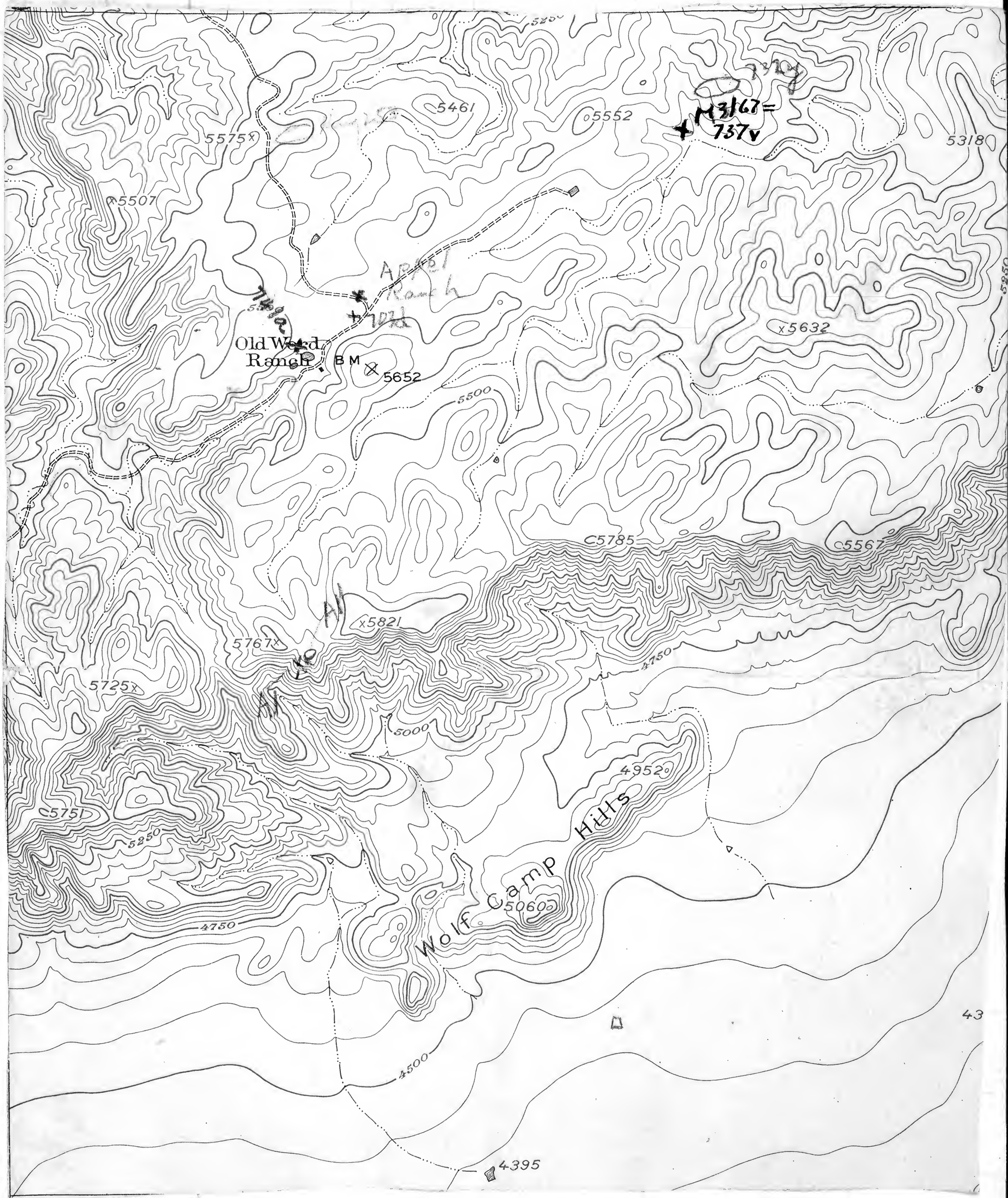
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
CORPS OF ENGINEERS, U.S. ARMY
THE UNIVERSITY OF TEXAS
(BREWSTER COUNTY)
MONUMENT SPRING QUADRANGLE
(Alpine)
(Hess Can
(Altuda)
103°30'
30°15'
103°15'
TO ALPINE
SOUTHERN PACIFIC SYSTEM
(GALVESTON HARRISBURG AND SAN ANTONIO)
Lenox
Old Payne Ranch
Decie Ranch
Skinner Ranch
Hatch Ranch.
Marathon
Arnold Ranch
Hargus Ranch
Dragoo Ranch
Spruce Ranch
Dugout Mtn
Dugout Creek
Canyon
Doubtful
T A N S
P A Y N E
MARATHON
Congl.
Congl
sh
trend of Tesnus
18a (goniatites)
base of Artinskia Zone
Gaptank fm. w/ Scacchinella
18d
18b
18c
Prouddenites type loc.
A367
A3676
M18675
M18672
M1867
M18678
M20677
M20676
M20675
M20677
M19672
M19671
M19671
M29671
7371L
7158
1767
7332
27F


5461
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Old Weed Ranch
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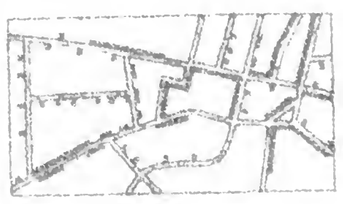
5000
4750
4952
Wolf Camp Hills
5060
4500
4395

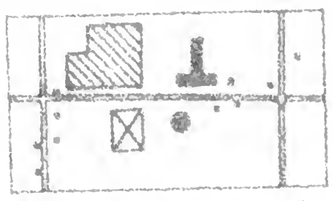
5750
75
5675

or larger. In addition to the area covered by topographic map
about 11,300 square miles of southeastern Alaska has bee
covered by planimetric maps on scales of $\frac{1}{125,000}$ and $\frac{1}{250,000}$.

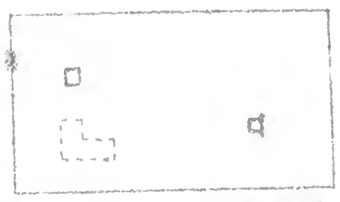
The Hawaiian Islands have been surveyed, and the resultin
maps are published on a scale of $\frac{1}{62,500}$.



City or village



Roads and buildings

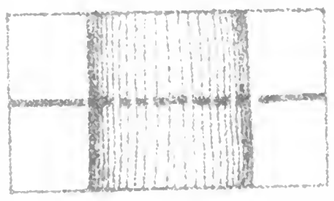


Ruins

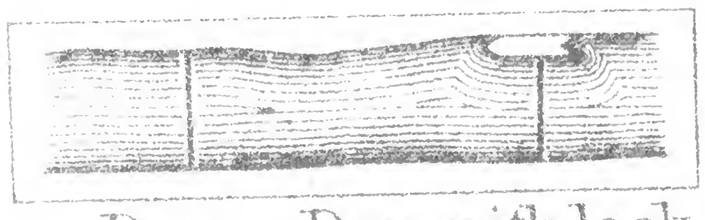
Cliff dwelling

Good motor road

Poor priva

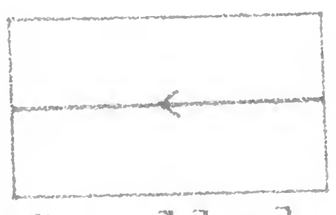


Ford



Dam

Dam with lock



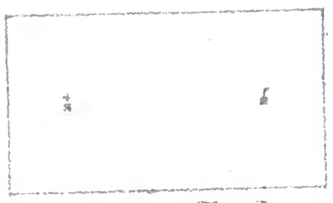
Canal lock
(point upstream)

U.S.
se
and re

Boundary monument

Bench mark
(supplementary bench mark shown by cross and black figures without lettering)

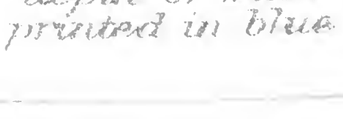
Cemeteries



Church, School
(distinguished on recent maps)

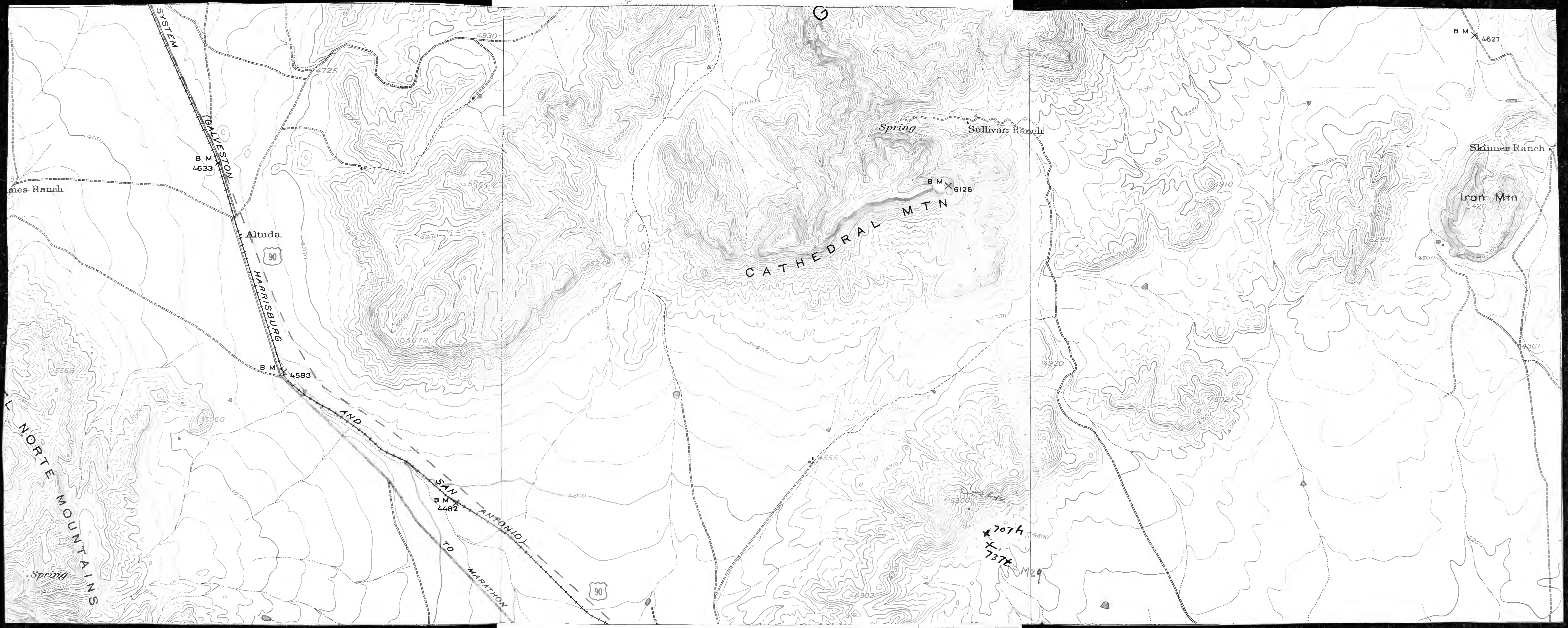
RELIEF
(printed in brown)

Elevation above mean sea level
(in black on recent maps)



Contours
(Contours showing depth of water printed in blue)

Depression contours


SYSTEM
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AND
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B M 4482
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…mes Ranch
NORTE MOUNTAINS
Spring
CATHEDRAL MTN
B M 6125
Spring
Sullivan Ranch
Skinner Ranch
Iron Mtn
B M 4627
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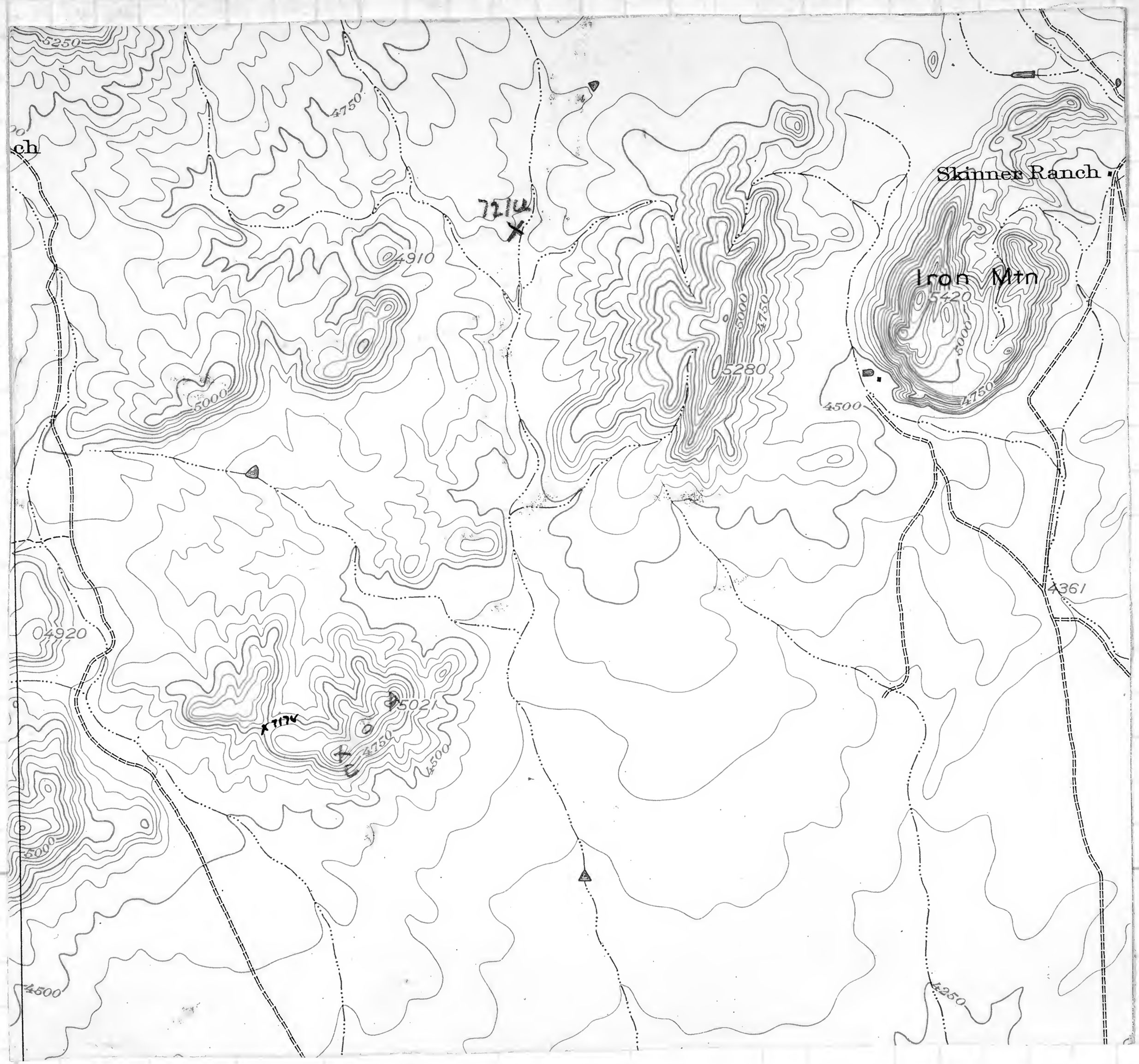
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(1)

March 1[?]17.

Left Washington on flight 157 (TWA) and landed in Albuquerque at about 2 P.M. about ½ hour late. Picked up car and boxes and went on to Socorro. Visited Flowers in evening. Went to Van Horn for night on the next day. On the 17th of March arrived in Marathon at noon. Went out to Dugout Mtn. Visited locality 733j. Unable to get more of the Cornuspira bed. This is a fine bioherm with detrital beds wrapped over it.

739g = M1767 – a small bioherm near bottom of Sullivan Peak member contains Scacchinella. This is about 100 yards west of the 733j locality.

March 18

737b M1867 – Beds with Waagenoceras and other Word fossils a few feet under the Cretaceous

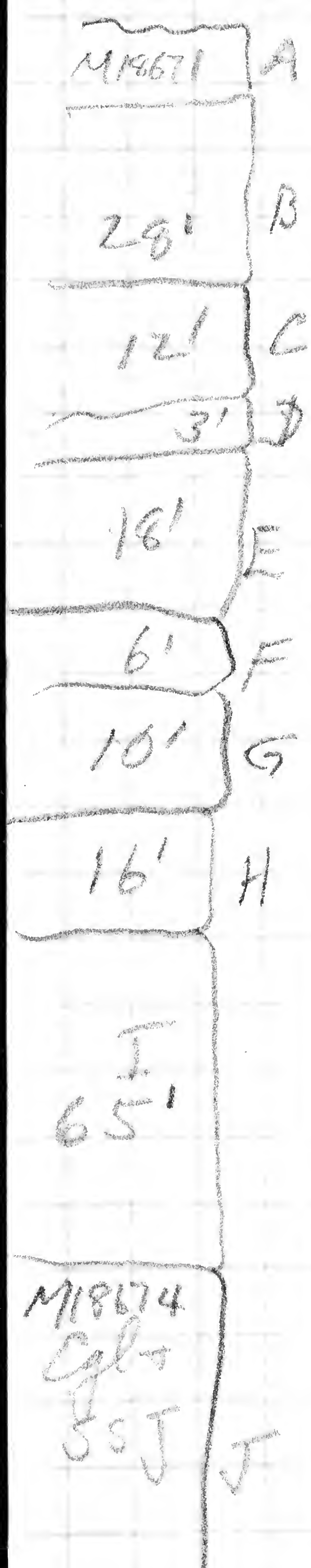
737c M1867' – Smooth black ls weathering into lumps with ammonites + fusulines. Lumps weather ash gray contain ammonites. Paraceltites and ammonites with fine revolving lines. Same as seen with Perrinites and forming top of Road Canyon

(9)

737d

Section d
M18672

M18672 – Fusulines just over lip of hill all Road Canyon. Down back slope of hill there must be about 20' of rocks before the ammonite bed. The latter are [illegible] 5 – 8' thick



A = ammonite bed 8'±

B: Heavy bedded ls mixed with some siliceous rock bedding irregular some siliceous material. Bed B. has about 15' beyond the lip of the hill. Fusulines (M18672) taken about 5' stratig above edge of hill & 10-15' below Ammonites bed

C – platy, siliceous, yellow shaly rock about 12'; top five feet covered. also has considerable heavy bedded ls lenses.

D – 3' heavy band

E – upper part mainly massive bedded ls thick & granular separated by yellow platy shale. Lower part massive granular limestone from which came M18673 = 737e

F – covered

G – fairly granular black ls brown weathering

H 16' – Showing some massive ls ledges

737e = M18673 – Take 50' below top of ledge in bed E

737f = M18674 Pennsylvanian at top of congl.

(3)

I – 65' of yellow siliceous shale and blue shale mostly on a covered slope.

J. Sandstone, brown and brown cgl. filling valley and slope of hill opposite

Dick saw Orocisphora on the slope, undoubtedly from Road Canyon

Shale around tank that we saw some years ago is undoubtedly Leonard.

737g = M18675 – about 450 feet above house on road just at Y forking the loop to the windmill above the house at the head of the ravine. Road Canyon just above house but at Road Y corner the black, gray-weathering limestone with ammonites, that forms the top of the Road Canyon. This is sandwiched between siliceous beds and is about 30 feet thick. Covers 25' of outcrop at top of knob.

36e

737h = M18676 – uppermost heavy ls of Road Canyon on road 230 feet above the house
27 paces below ls

180 paces = 450' above house to ammonites

M18677 – Fusulines from low in Road Canyon just NW of house = 737i

(4)

Road canyon occupies the knob just NW of house it appears in road 280' above house and runs for 65 paces to the Y forming the loop around the windmill.

The combination of Road Canyon lo and Cathedral Mtn SS and cgl has proved common in the area NW of Dugout Mtn. Apparently there is no full section of Word except at high hill with knob of Capitan

736x = M18678 – 4 blocks from 700v.

March 19

737j# M1967 – Started at first of low foothills in chain at base of Del Nortes. Front of low hill (A) is composed of dolomitized massive conglomerate of large limestone pebbles and small siliceous pebbles. This may be the Sullivan Peak or possibly Lo 2 (of King's Leonard); Back slope of knob is brownish orange siliceous rock followed by sandstone and shale.

1a limestone, very sandy to conglomeratic 5 to 6' thick follows from this we took numerous ammonites similar to those

737j from Leonard 2 or 3 of PBK.

Above this limestone the rock is mostly silty-sandy

(5)

shale, rather soft and crumbly but culminating in a 30' sandstone yellowish and fairly hard. Between the ammonite beds and the sandstone there are alternations of shale and sand, the latter often containing fair-sized plant stems. Other than plants we saw no fossils in the sandstone.

Ravine above ss is debris choked but showed sandy shale and some sandstone. But at 127' above the sand came a cgl. for about 15' and then what appears definitely to be Cretaceous. Permian float occurs in the ravine, good limestone, some with silicified fossils.

M19672 Cret		Z
10'±		A
40'±		B
25-30'		C
10-12'		D
		E

Gully just N of one with thick ss.

A = Conglomerate with large mass of Coenosphora and other Permian. Possibly basal Cretaceous.

B covered

C — Biohermal type beds with Composita, Echinosteges, Peniculauris

D - mealy lime ss and sandy limestone with a few fossils

E Sandstone + shale,

I guess that D is about 50' above the thick ss in the

(6) next gully South.

737K M19671 - Ammonite bed east of M1917

The knobs forming the front of the hills here have vertical bedding About 75' of cgl. ls, ls pebbles & silicious pebbles up to 3 or more inches form the front 3rd of the hill The middle 3rd is brown silicious rock, & in the last 3rd a limestone bed of 8 or 10' and vertical forms the backside of the hill. This ls is followed by more silicious beds but these are not vertical, they dip at a strong angle into the Del Norte. The front 3rd is all dolomitized

732 j - appears on back slope of hill fronting valley. The Road Canyon appears as two limestones. The 736 y is the very top of the second or uppermost ls. Just below the beds with Collenulina appear cobbly black limestone, weathering gray. This ls contains the same ammonite we have collected on the top of the Road Canyon in the exposures seen yesterday at the house and the locality to which we took Furnish & Glenister

Ammonite bed = 737-l

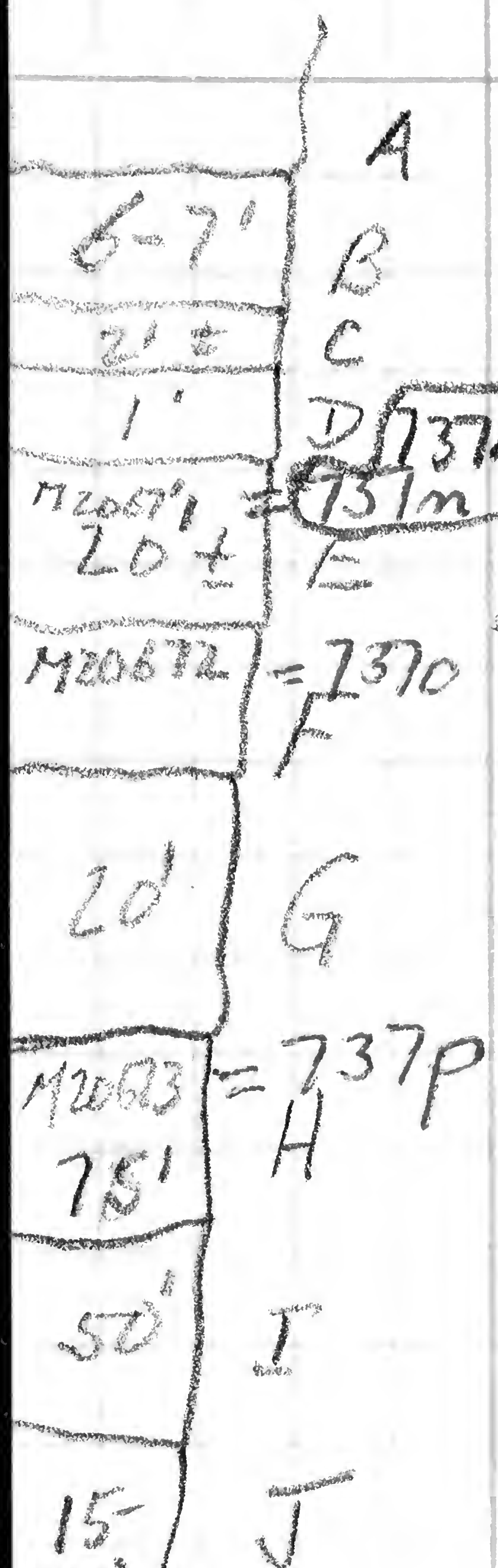
(7) Reyerhoos on March 1967 – The vertical massive beds tipped up along the mountain front suggest Sullivan Peak. The beds are so dolomitized that we could not find any fossils in it. I was unable to find diagnostic brachiopods in the ammonite beds although we saw what looked like Reinulamus and a fragment Longimabus. This suggests Bed 3 of King. The tipped up beds on the front might be bed 2 which has some bioclemal material in it.

On the way up the mountain we found a loose Ondisella as float under the big sandstone but we could not find it in any of the limestones. I think the upper limestone is probably Wellin but can't be sure. Edithges was common in biochemal limestone and Cosinophora occurred just under or in the Cretaceous. The uppermost beds under the Cretaceous may be a basal conglomerate, certainly there are a variety of pebbles in the conglomerate.

(8)

March 20

M2067



A - siliceous rock mostly yellow orange to brick red weathering

B - 6-7' variable limestone, many fusulines, fine-grained to coarsely granular. Contains small Eutelates[?] und is same bed as 732j. } 737m M2067

C - 2' ± bluish to black blocky ls with ammonites.

D - limestone fine grained, irregular bedding.

E - 20-25' of bluish to black, blocky limestone with ammonites. Same bed as at top of Road Canyon and at 732j. M20672 = 7370

F - 12' Granular ls with fusulines (M20672) bottom bed 1½ with thick siliceous stringers.

G - 20 siliceous thin platy, buff, to yellowish shale

H - 75' thick-bedded limestones dark, with fusulines separated by siliceous shale. 7 beds in all. M20673 is from topmost bed. M20674 is from 4th bed from top. = 737f

I - covered slope with 50' of sandy shale some thin shale fresh! Probably Leonard

(9) J. Sandstone, 15 - 20' of Cathedral Mtn.

M 20675 = 737R

Hill 4861 — S 55° W =
Hill Old Payne R - S 81° W
Top Dugout - N 70° W

Top of long spur with uppermost orange cherty rock,
then 20'± of blue blocky ls. with ammonites. Near top of Road Canyon. Fusulinid ls. with ammonites come from 20' below top of RC.
R.C at least 100' thick, in several ledges.

737S Perrinites bed = M20676 - N85W - almost due west of new house on road. From Knob 4861 it is S50W.
1000' west of work shed — About 1/4 mile west of work shed. Dolomitic ls with coarse pebbles and abundance of ammonites

M 20677 - E side road about 1/2 mile S of new house contact of Cathedral Mtn. on NW flank of hill with Word SS 1' congl. between.

(10)

March 21

West end bluff ca ½ E of creek junction, bluff capped by slide. About 50' up hill is sandy shale + ls. Then comes a 50' massive ls. Bottom of big mass of coarse cobbles. On top of mounds comes limestone in beds up to 15" and thick-bedded chert, the chert 3-4' thick. Bedded ls 50' ±

M2167 — From loose blocks on slope just W of 728-2.

M21671 — lowest beds in Creek just west of 728-2 — Yellow-weathering blue shale.

M21672 — Fusulines from a boulder in cgl under bioherm at 728-2

M21673 — Loose piece with Instikella found at 728-2.

738g M21674 — Loose piece 100 feet above bioherms.

Spent day at west end Chinati hills. Collected four pieces from large Leptodus block.
Scacchinella fairly common

(11) as crackeyd material. Saw none silicified. Silicification not common in bioherms at west end of Chinati hill.
Bioherms overlie cgl. and also at 50-100' of shale and thin-bedded limestone in the area from 728-l and west.

March 22.

The loose specimens collected in Chinati 8 (728j?) are rather from the alta fm. than from the Cibolo. Our collection this year is

738h M2267

738i Sponge is M22671 - float on slope under largest bioherm, first one west of volcanic plug.

738j M22672 - Breccia zone on slope just west of large bioherm of M22
Slopes between 728-l + M22 thick bio.

738K M22673 - about 25' below the Lissatella bed.

738-l M22674 - Beds with Lissatella about 125 above the uppermost bioherm.

M22675 - About middle of thin-
738m bedded member of Cibolo in a

(12) Thick lenticular line. $M22^4$ + $M12^5$ suggests Road Canyon.

738n M22676 — About 50' below the breccia or cgl. under the big bioherms, under bioherm just E of the largest one and west of the igneous plug.

739m M22677 — Bioherms on hill east of biggest bioherm.

Cibolo fm — Udden 1400'

5 Yellow massive ls 650'
4 Thin bedded zone 450'
3 Spiculite zone 85'-160'
2 Lower Brecciated zone 133' - massive ls. & breccia
1 Transition beds 100' gray to yel sh., ss & ls.

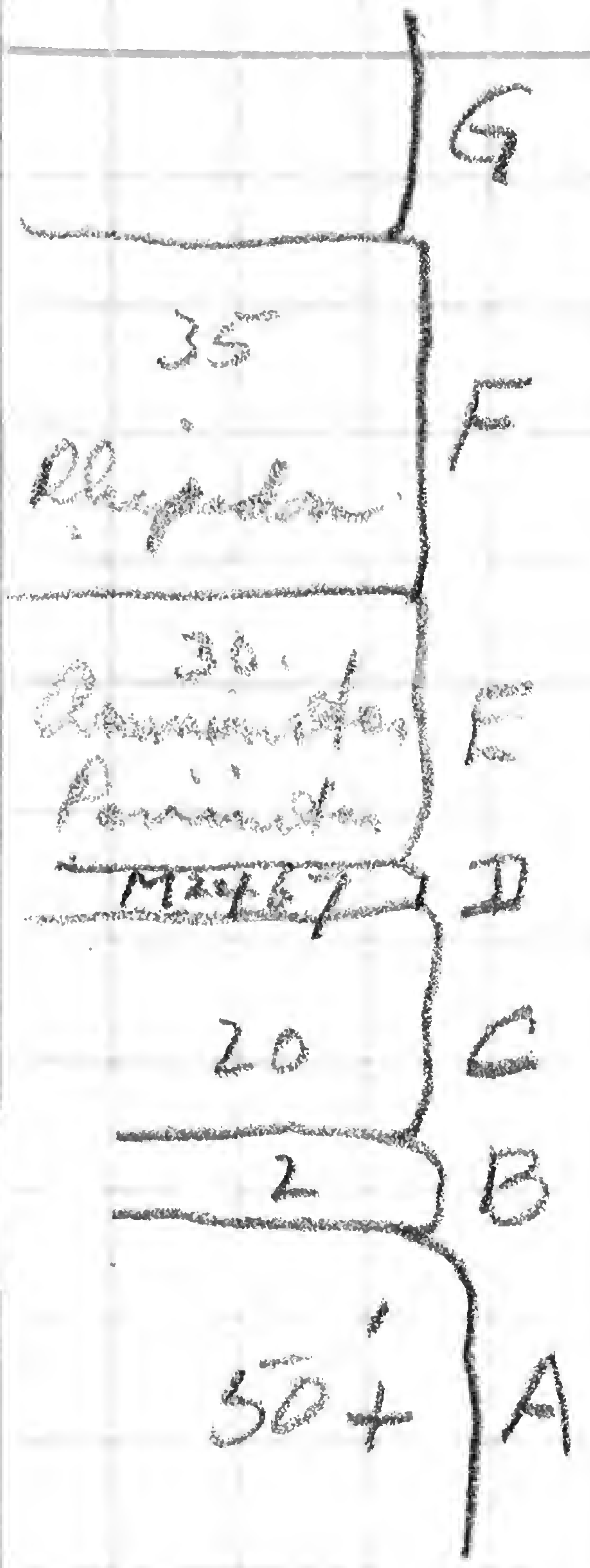
In morning went over slope west of largest bioherm and slopes below largest bioherm. In afternoon collected some limestones at about mid slope, about halfway up in the "thin-bedded zone" exposed above the bioherm just west of the largest one. These contain a [illegible] that looks to me to be a Road Canyon one. Later in afternoon went on a hunt for [illegible]. We started on slope just east of

(B) volcanic plug (Tig) one mile east of the west end of the Permian Hill. On this slope the bioherm is small but we found abundant Scacchinella in it. About 50' under this bioherm occurs the transition beds with a profusion of crinoid stems and other fossils. Large Heliospongia was found loose on the slope. We also found Scacchinella fairly common in the breccia beds. Also large fusulines identified as Wolfcamp? The bioherms overly these beds. The transition beds may be Lenox Hills fm. whereas the Bioherms may really be Decie Ranch.

In the breccia forming the base of the largest bioherm we saw boulders with Scacchinella. One boulder, about 3-4' in one direction abounded in crinoid stems and Scacchinella and is identical to the crinoid-stem-Scacchinella beds seen in the next bioherm to the east mentioned above. These boulders were derived from the bioherms and are essentially contemporaneous with them.

(14)

March 23
Rain



March 24
On west side largest bioherm near gully collected beds with *Institella*!

A = large bioherm
B – 2–3' of limestone granular, coarse grained with long spicules,
C – 20'± orange brown chert also with spicules
D – Thin band of ls, ½–1' thick with occasional ammonites & brachiopods especially Institella. = M2467 = 7380
E – 30' of chert, yellow siliceous shale and occasional ls. band with occasional ammonite – one Perrinites = M24671 = 738p
F = 30-35' of blocky calcarenite with occasional fossils. Small Rhipidomella seen and *Perrinites*

G – Thin platy shale of laminated zone.

B – F = spicule zone and this must certainly be Leonard in age.

(15) Up ravine past igneous plugs.
Saw same section as elsewhere.
Went up thru thick bioherm with
brachiopods in lower part. Saw
no good silicified pieces. Above
the ls bed with spicules comes
thick chert capped by a sandbank
type bioherm with Perrinites at
top. This is followed by the
thin-bedded zone.

Spicule bed
ls 30'
chert & occasional ls.
Bioherm

M 24672 = 738q is 2 small pieces of
ls from between the chert and
the bioherm = basal spicule
bed. Contains some [illegible].
Ammonite from top of spicule zone
Between the spicule bed and
the bioherm is much rubble
from the bioherm.

Biggest bioherm is at north
bend of stream.

738r = M24673 – Slope exactly 1/2 mile
E of the igneous plug L 3 blocks.

738s M24674 – 1 1/2 miles E of plug.
Near top of bioherm

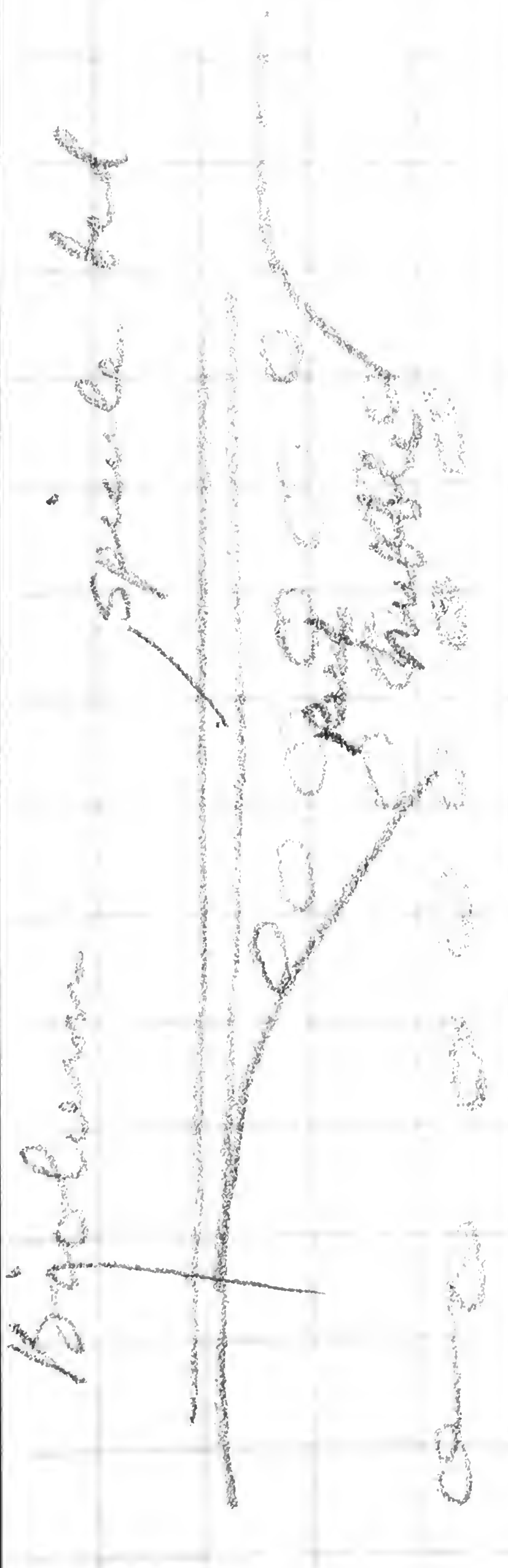
738t M24675 – Float from transition
zone, 1/2 mile E of volcanic plug.

16

738u M24676 — Perinites from limestone capping zone of spicules at loc. M2467.

738v M24677 — Perinites from limestone capping zone of spicules at locality 1½ miles E of the plug.

738w M24678 — Just above base of spicule zone, just west of biggest bioherm.



The uppermost limestone 30' thick of the spicular bed makes hogbacks behind & above the bioherms.

The bioherms are semilenticular and have a generally uniform or nearly so thickness. They are based on rubble having enormous blocks 60 or more feet in one direction. Between them there is also much rubble. Just W of the largest bioherm the base of the spicule zone rests on the top of the bioherm but westward from the top of the bioherm the space between the largest bioherms & that next to it is filled by reef rubble. The mines cutting the crook Chols are on small faults or through the rubble. The basal beds of the rubble have large crinoid stems

as pebbles as well as pieces with large fusulines like those in the Transition zone. We found Scacchinella in the Transition zone and some of the Scacchinella blocks in the basal rubble of the brecciated zone may be derived from the transition zone. Other Scacchinella blocks especially those with abundant crinoid stems. At the locality 1/4 east of plug found Scacchinella at very top of bioherm.

The spicule bed contains Anastella near the bottom but I did not see it higher in the section. Rhipidomella occurs also in this bed and denotes Cathedral Mtn.

Check R.E. King's Slapter species.

(18)

March 25 – Section next to mine

About 30' of heavy-bedded chert above gravel, boulder bed of Breccia zone. Contains lenses of ls. one about 20' above base with Xestoxia. Heavy chert with lenticular ls. at top. With ammonites

C – 40'± thin-bedded shale +

B: cht chert with thin ls at top 3' ± ?

D – 40' of papery thin bedded sh with occasional ls bed, none very thick

(739j)

E – About 50' dark gray calcarenite with few fossils and these mostly broken. Some dark chert. Occasional Richthofenids

Above E comes cherty brown, thick bedded siliceous rock with papery siliceous shale. 20' + 100 paces = 250' + 20' more to a bioherm(?)al layer with considerable sand – makes a hump. E estimated at 160' – Upper part E is sandstone.

F = hump at 20' ± ? This might be Cretaceous.

(19) No recognizable fossils in the bioherm but numerous ghosts of gastropods — looks like Bellerophonts. This stuff is almost certainly Cretaceous.

The biggest bioherm is 1/2 mile west of the plug and just east of big bend in Rock creek.

738x M25672 Fusulines from 6-8" bed about 30' (50' stratigraphically) below the dolomite of the yellow beds on hill facing ravine on W side of highest bioherm.

738y and M25673 — 10' below top of thick ls 170' feet below the dolomite of the "yellow beds" on hill facing ravine on W side of highest bioherm

738z M25671 — Fusulines from thick limestone in middle of thin bedded zone in hill above the highest bioherm.

(20) March 26
Narrows of Cibolo Creek - variegated red & yellow dolomite, a great reef mass overlying flat-bedded, blocky dolomite (weathering light gray). Forms a bluff about 175' at it highest in the narrows. Contact of reef & limestone irregular. We were unable to make out any major fault. Many minor displacements as one might expect in a reef. South end with cross-bedding. Reefs overlain by thin-bedded layers. We measured with 30° dip along creek about 240' total thickness of this part of the Cibolo. Udden gave 650' but this seems excessive

Look up C. P. Ross 1943 for specimens from the Chinati Mtns.

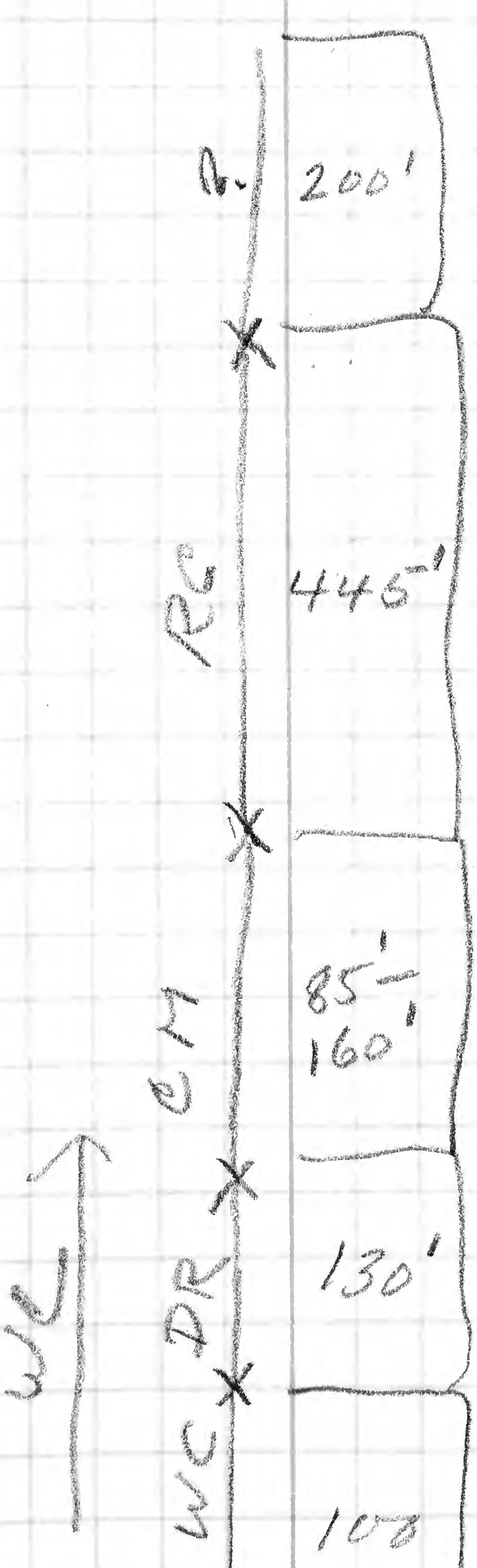
The hill at the west end of the Permian band looks to be about 400' high and the rock seems to be a fine ?out but we saw no unusual structure. At 12667 a 15-20' bed of ls comes to the stream level. This is full of fusulines and the limestone looks like the

21

beds with fusulinas and suggests the fusuline bed at M25-873

On the west side of Cibolo Creek at the narrows is a small hill possibly 100 feet high which shows flat bedded blocky dark limestone in layers of an inch to nearly a foot, very hard weathering light gray. This is overlain by massive reef limestone or rather Dolomite. We saw no fossils. This hill is exactly like that across the creek where the supposed thrust is located. The dolomite is lithological like that of the "yellow" beds. This is a normal sequence and it seems to me that both sides of the creek are lined by the same rocks

The rough section of the climatic sequence seems as follows:



yellow reef dolomite

Thin bedded zone of Uddenites given as 450'– from bottom
55' sh, 80' of ls (Fusulina M2587?); 15' Lissotella; 100' shale; 20' massive ls. Fusulinas; 180' shale & ss

Spicule zone – chert at base with Anastatella? – ls near middle with Perrinites & 30'–50' ls at top with Perrinites

Breccia & "reef" zone

Transition beds – with 10-15' limy zone near middle

(23)

March 27

About 30' heavy-bedded chert with lo lenses containing fusulines - few other fossils seen, none recognizable.

739a M2767 - lowest fusuline bed

739b M2767T - Uppermost fusuline bed. This is evidently the bed mapped by King as dividing the Leonard from the Word. By position it is Road Canyon but we only have fusulines to test this.

(24)

March 28.
Went out to Wolfcamp hills. Obtained permission to go on property and visited locality 727e for more blocks. The fritz algae beds are part of a bioherm which underlies the flat-bedded upper part of bed 4. Perhaps this should be placed in bed 3. Although we took 5 blocks we got the only pieces showing brachiopods.

March 29.
Hill 5250 is N 70° W
" 5021 " N 60° E
Cocinophora blocks are on end of contour lobe above M29. This should be checked on other maps. Cocinophora definitely out of place because I saw a block plastered on the north side of the hill definitely out of place.

737t = M2967

M29 – Bioclermal lumps or sand banks between the Pennsylvanian and the cgl. of the Lenox Hills. These masses contain numerous fossils. Fimbriaria was common at this place. The fauna suggested that fresh locality 718 in Dugout Mtn.

12145

M29671 = 737a

Nose of hill having type section of Decie Ranch & just east of fault

I measured 49' from first or lowest cgl. ledge to lowest part of continuous cgl. Saw no bitumds above the continuous cgl. The slope distance was about 100'. These rocky bodies are mostly calcareous and may represent large sand banks. We were not successful in collecting because the rock is very friable. Ammonites are abundant but we were unsuccessful in getting any good ones.

715b - This is the long slope adjacent to the ravine separating the high hill with type Decie Ranch from the low faulted block. Here the bitholmal beds or rather rounded masses are scattered over the surface. These also have many ammonites but they seem unobtainable because of the friableness of the rock. Cgl. beds occur among them and cgl was seen in several levels at M29. The cgl has chert pebbles and is brown like that of the Lemon Hills.

26

March 30
706b is 0.7 mile east of middle of divide in Hess Canyon.

737w It is Appel Ranch not Apple R. as we supposed and published.

The dolomite of the Skinner Ranch at 705a I is about 75' above road at east end of hill facing Leonard Mtn. and descends nearly to road at 705a.

March 31 = 737V

M31 Instititella in Hess lithology above a thick bed of small pebble cgl. Pebble cgl. over 5' thick. 25-30' of Hess lithology followed by yellow shale & bioherms.

Evidently the Cathedral Mtn. small pebble cgl. is not a single unit. at M31 it is at least 5' thick but upward it appears & disappears in a matrix of Hess lithology. The great thickening of the Hess may be in part in the Cathedral Mtn.

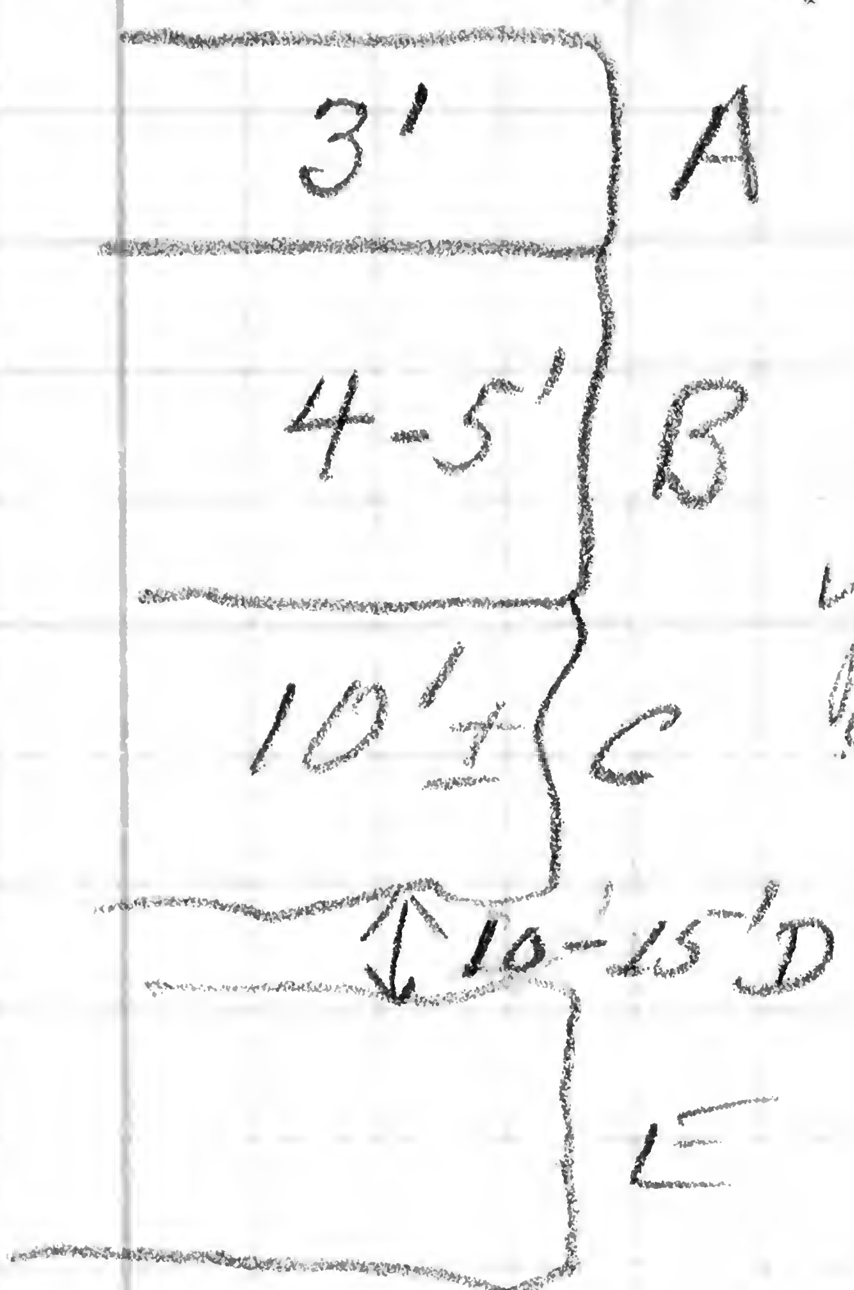
(22) March 30
706 b is about 0.8 mile east of the divide in Hess Canyon.

737w = M30 is another small lens about 0.1 mile west of 706b and about 100 yds N of the road.

M31 cont. It is a question whether the Cathedral Mtn. small pebble cgl. is actually a continuous bed. Another search for Anyclipella failed to turn up any more pieces.

(28)

April 1 Taylor Ranch Member
N45° W of middle of high knob of Wolfcamp hills
N 20 W of Uddenites knob



A = Sparsely crinoidal yellowish weathering ls. Enteletes

B – yellowish gray ls with orange chert.

Large Omphalotrochus large clams, Pinnalaris

C – cobbly limestone breaking into lumps and containing many fossils 10'±.

D – covered – mostly shale? or soft crumbly ls.

E Limestone cgl.

739i = A1' – Fusulines at bottom of thick dolomite capping hill 75' below top of hill with closed contour just W of hill 5321. This dolomite makes, I think, is the source of the Scacchinella found loose on the outcrop of Taylor Ranch.

5750/75/69

(29)

Be sure to check location A1 with my numbers for this place

April 2
Searched for Wangenocaras at 707a but did not find a trace of one. Just under the capping ledge of the Red Canyon comes a Bird-stone cgl. This appears on the lone narrow ridge from the point of the spur from Sullivan peak about half way from end of spur to crop of heavy beds. This cgl. looks much like that which underlies many of the bottoms. The heavy ledge seems to disappear in the hill on the west end of the amphitheater on the west side of the spur. The Chonetinella beds seem to be the first fossils to appear commonly after a long series of unfossiliferous platy beds.
A2 = Chonetinella beds.

(HK)

Limestone-pebble conglomerate; light gray, weathers gray, medium grained, thin bedded, mottled with brownish gray, silty Linnarssonella girtyi.....	0.4	67.8

DRY CREEK MEMBER - 67.8 feet thick.

Covered; green fissile shale and brown, thin bedded calcareous siltstone.....	67.8	0

PILGRIM FORMATION

Limestone; the top of the massive Pilgrim limestone is the datum from which all footages are measured.

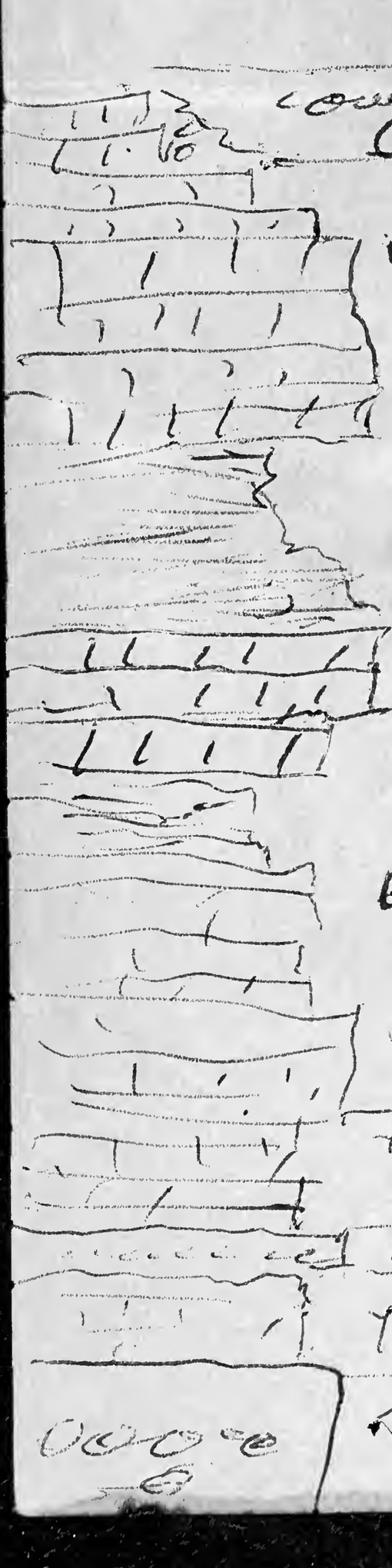
(GC)

dip 30°
N.E

142
4
568'

48
4
192
24
216'

48
6
288
2



coral backslope of hogback
Cis gray is like in ledge — 3 levels

forms crest of hogback
ammonites, sponges, bryozoa — 10 levels

blocky gray ls ledge — w Chert blobs & stringers

very platy siliceous shale, tan — 12 levels

light gray ls ledge — 2 levels

blocky gray ls with spicules } in 1ft beds, w 3-5 ft beds of tan siliceous shale between — 10 levels

short ledge, 1ft ls at top — 3 levels

thin tan platy chert — 5 lev.

ls. hash, silicified brachpods — 1 ft

thin platy, chert & sp~~dns~~ — 2 levels + 2 ft

nubbly bioherm, not much

(HK)

pebbles, Angulotreta tetonensis, A. vescula, 'Dicellomus' mosaicus, Lingulella sp.....	0.9	86.5
Covered; probably shale and shaly limestone.....	7.0	79.5
Limestone; light gray, fine grained, very glauconitic, and coarse grained coquinite with Angulotreta tetonensis, Billingsella perfecta, Taenicephalus gallupensis, T. shumardi, Crinoid columnals.....	0.8	78.7

Parabolinoides subzone

Limestone; gray, fine grained, slightly glauconitic, and coarse grained brachiopod coquinite with Angulotreta tetonensis, Billingsella perfecta, B. plicatella, Ceratreta hebes, Eoorthis remnicha var. A., Orygmaspis firma, O. llanoensis, Parabolinoides hebe, Simbaltea eryon,

Sep 30
P 2

1 step = 4'5"

3 4 / 03 / 13 3 / 1 3

Covered base of back-slope

ledge at top of high hogback — 42 levels
yellowish gray massive calcarenite
25 levels to crest of hill.

M 25.67 (2) is 10 levels below

tan platy siliceous shale — 40 levels
w/ beds of gray fine gr.
Ls. & dolo (tan) + chert beds

massive gray ls. ledge (10 ft below top M25.67 (3)) — 4 levels
calcarenite w/ many siliceous fossil frags

← fusulinids near top M-25-67 (1)

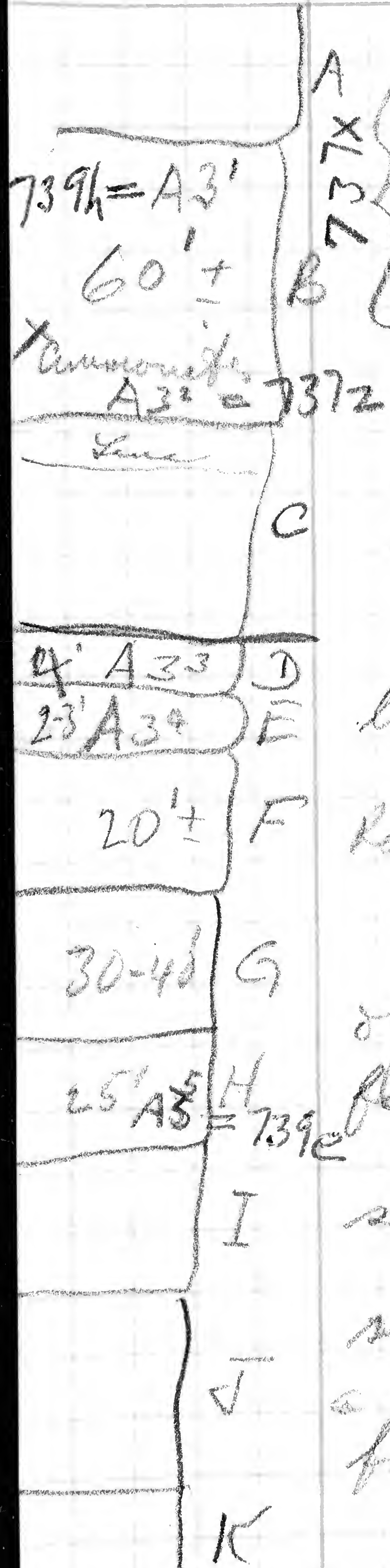
Partly cov. slope of thin bedded — 22 levels
gray ls fine grained w/ patches of tan dolo. (~~Liosotella bed in middle of interval~~)

capped by gray ls w/chert
reddish brown ledge, dolomite — 3 lev Liosotella at base

thin bedded gray ls w thin intervals of tan shale — 20 levels

Tan papery thin
siliceous shale w/ — 11 levels 48'
2" or 3" intervals of
gray ls (Clyde on Ammonoid bed of P-1

April 3



A = Cretaceous

B = 45' of slope, possibly 60' of sandy limestone with ammonoid fossils, brachiopods, [illegible] fine yellow platy shale in lower 10'

C – 65' of slope with yellow siliceous shale with 10' sandy ls. at top which is probably a local lens.

D – 3 or 4' fusulinid detrital limestone with Collumatus = 737y

E — 2-3' ± Blue cobbly ls with Road Canyon ammonites = 739d

F – 15' of slope possible 20' of limestone, discontinuous, some fossiliferous

G – 27' of slope in yellow siliceous shale

H – 20' of slope yellow siliceous shale and scattered ls beds with a thick 5' layer at the top. A 3⁵ fusulinids = 739e

I – 30-35' of biohermal limestone with Coscinophora Cobbly lensal beds.

J – covered

K – base of section – sandstone

61.9

(21)

1 mile from road, 2½ miles from old Payne R.;

739f = A3[6] - Low hill at base of Mtn. Dark thin beds of calcarenite in siliceous shale. Looks like Skinner Ranch.

733j - took one block of Coscinophora. Saw Scacchinella a little lower down from the _Coscinophora._

Location of bioherm beds at base of Road Canyon at A3.

On Dugout Mtn. N 75°E = S 75°W
Hill 4861 N 15°E = S 15°W
Highest hill with
Word capped by Capitan N 5°W = S 5°E

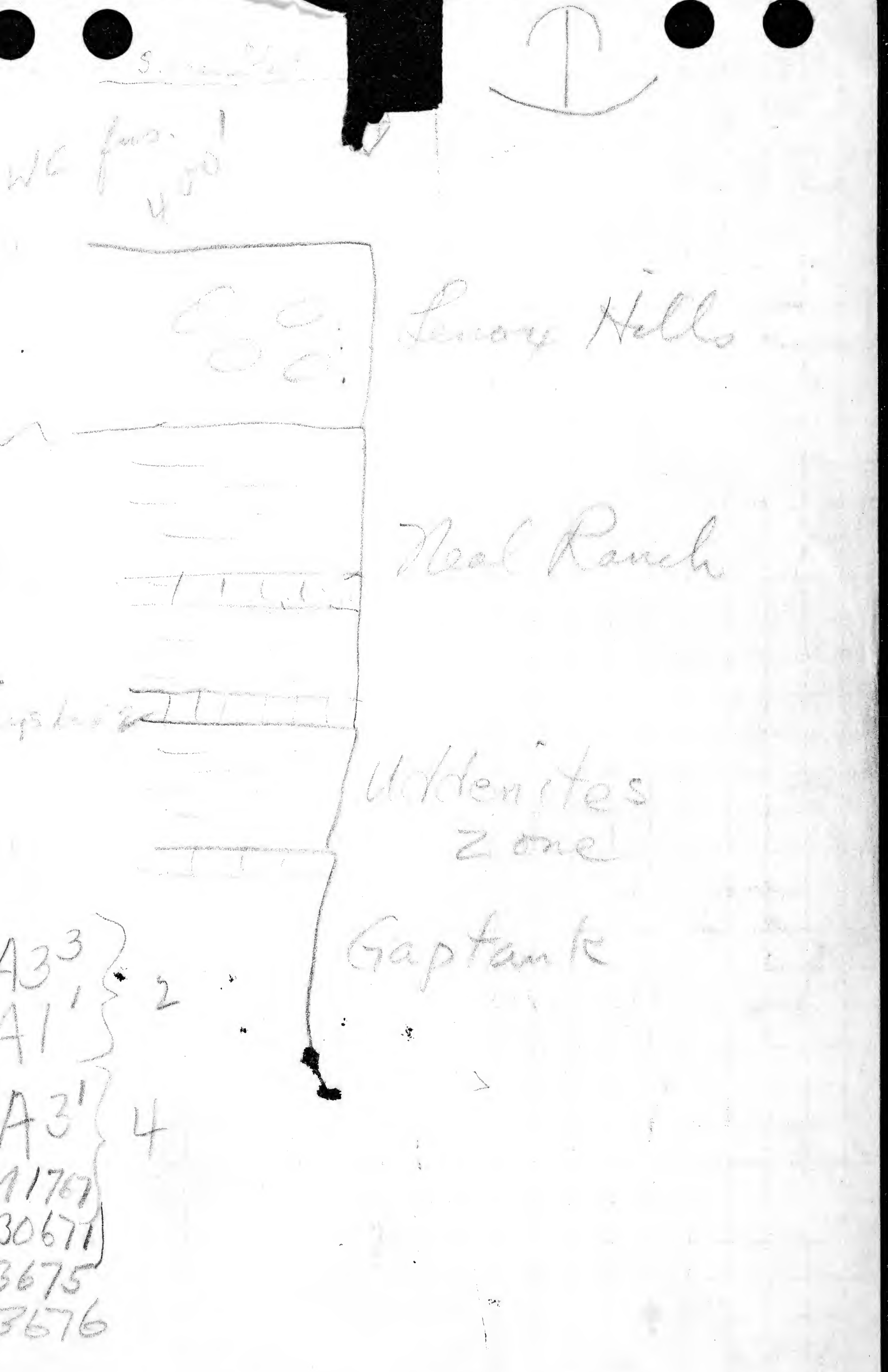
Blocks

733 j ------ 4
M18167 ------ 3 (small)
M18678 ------ 4 =
732 j ------ 8
Clinatis { 728 l ------ 4 } Sent from
M24673 ------ 7 } Marfa
727e ------ 5
706e ------ 1
M30 ------ 1
721u ------ 4
728p ------ 8 } Sent from
725g ------ 2 } Van Horn
A7 ------ 2 }
53

Sent 14 bundles from Marfa
" 49 " " Marathon
" 14 " " Van Horn
77 "

728p = 700
725g, A7 = 450
Beyas = 200
1350

Marfa 1500 lbs.
Marathon 4770 "
Van Horn 1400±
7670


Loop Hill
Neal Ranch
Unbenites
Zone
Gaptank
A3
A1
A3'
M176
M3067
A3675
A3676